Strategic Services Marketing
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Lecture - 57

Augmented Reality and Virtual Reality in Services

Hello everyone. In this session, let's explore the role played by Augmented Reality and Virtual Reality in services. Let's start with Augmented Reality or AR. Augmented Reality is a technology that superimposes digital information such as images, videos, or 3D models onto the real-world environment, enhancing the user's perception of reality. Unlike Virtual Reality, which immerses users in a completely simulated environment, AR integrates digital content into the user's view of the real world, allowing them to interact with both physical and virtual elements simultaneously. Let's understand how AR overlays digital content onto the real world.

AR technology typically relies on devices such as smartphones, tablets, and smart glasses or even heads-up displays, which are called HUDs, to deliver digital content to users. AR applications use sensors, cameras, and software algorithms to detect and track real-world objects and surfaces such as walls, floors, or even markers. Based on the user's location and orientation, AR applications project virtual elements onto the user's view of the real world, creating the illusion of digital content seamlessly integrated into the environment. Users can interact with AR content through gestures, touch, inputs, or even voice commands, enabling them to manipulate virtual objects, access additional information, or perform actions within the AR experience.

Let's understand what exactly is this Augmented Reality and how does it work. Within Video, have a look at this video. What is Augmented Reality and how does it work? Augmented Reality is a technology that allows digitally generated 3D objects to be overlaid in real-world scenarios. The virtual object shows up on the screen in the real environment together with the AR device's camera input. This way, the users can interact with both the physical world and the virtual object, enriching the experience with data.

While still developing, it is estimated that worldwide spending on AR technologies will reach $45.1 billion by 2022. Augmented Reality and Virtual Reality are often grouped together, but they don't work the same way and serve different purposes. While the Augmented Reality user still sees the physical world, Virtual Reality completely immerses the user into a virtual, computer-generated scenario. When a user puts on a VR headset, the screen eliminates any interaction with the real-life environment.

However, it often does simulate a real experience by employing visual or auditory stimulation. To experience Virtual Reality, you need special equipment such as computers, headsets, or gloves. Now let's understand some examples of AR applications in services. The first application is with respect to retail sector. AR is used in retail to enhance the shopping experience by allowing customers to visualize products in their own space before making a purchase.

For example, AR-enabled apps like IKEA Place allow users to preview furniture and home decor items in their home environment using their own smartphone camera. IKEA Place app IKEA's AR app allows customers to visualize furniture and home decor in their own space before making a purchase, enhancing the shopping experience and reducing returns. Have a look at this particular IKEA Place app that can makes you get into the AR application and view those furniture items in your home. Have a look at this video. Another application of AR with respect to education sector. AR is employed in education to create interactive and immersive learning experiences.

For instance, AR applications can overlay educational content such as 3D models, animations, or historical information onto textbooks, worksheets, or even real-world objects, making learning more engaging and interactive for students. Have a look at this video that talks about Augmented Reality application in education. This is another interesting video and initiative from one of our state Kerala where the AR application has been used to teach students in classrooms. Have a look at this video. In the middle of a classroom in Malappuram, Kerala, an elephant appears next to a teacher.

The Murkandada AEMAUP school is experimenting with Augmented Reality during their virtual classes. This is the LKG class of the school. It's not just elephants. In class 6, a Hindi teacher stands next to a cow as she explains what a guide is. For class 5 students of social sciences, an artificially created solar system revolves in the classroom.

Shyam, a teacher at the school, is behind this new development. Speaker P. Shivarama Krishnan and film director Lal Jhose have appreciated the school for its efforts. Another application of AR is with respect to healthcare. In healthcare, AR is utilized for medical training, patient education, and surgical planning.

Surgeons can use AR-enabled devices to overlay medical images such as CT scans or MRI scans onto the patient's body during surgery, providing real-time guidance and visualization of anatomical structures. Have a look at this video that talks about AR application in healthcare domain.   In summary, Augmented Reality enhances the user's perception of reality by overlaying digital content onto the real world. AR technology offers a wide range of applications across various industries including retail, education, healthcare, and entertainment, enabling immersive and interactive experiences that blend physical and virtual elements seamlessly. Let's have a look at the benefits of Augmented Reality in case of services.   The first benefit here is of course improved customer engagement.

AR enhances interactivity and engagement by overlaying digital content in the real world, making services more immersive and interactive. Secondly, with respect to enhanced visualization, Augmented Reality enables customers to visualize products, spaces, and information in real time, helping them to make more informed decisions. Third benefit is with respect to personalized experiences. Augmented Reality can deliver personalized experiences tailored to individual preferences   and behaviors, enriching the customer journey and driving customer satisfaction. Now let's discuss more about Virtual Reality or VR.

Virtual Reality is technology that creates immersive computer-generated environments or simulations that users can interact with and explore. VR typically involves the use of head-mounted displays, that is, HMDs, along with motion tracking sensors and controllers to simulate the user's physical presence within a virtual environment. Unlike Augmented Reality, which overlays digital content onto the real world, VR immerses users in a completely synthetic environment, isolating them from the physical world and transporting them to a virtual space. How VR creates immersive simulated environment? Let's understand this.   VR technology relies on a combination of hardware and software components to create immersive experiences.

Head-mounted displays or HMDs contain high-resolution screens that display stereoscopic images to each eye, creating a sense of depth and immersion. Motion tracking

sensors at the same time track the user's movement and adjust the virtual environment accordingly, allowing users to look around and interact with objects within the virtual space. Controllers or input devices enable users to manipulate objects, navigate the virtual environment and interact with virtual elements using their own gestures, hand movements or even button inputs. Through the combination of realistic graphics, spatial audio and interactive elements, VR creates a convincing illusion of presence, transporting its users to virtual worlds and enabling them to engage with digital content in a more immersive and interactive manner. Let's understand what exactly this virtual reality means with this particular video.

Have a look at this. So, if you see the heart glowing just touch it for me and you will see the vasculature coming up. Oh my goodness. Can you tell me what you seen. I've seen the entire arteries the cardiac arteries. I've run all my students to see this. With most of our other stuff, it's almost two-dimensional where it's a picture or some type of sound and it's not all continuously together and this is three-dimensional, almost four-dimensional in the sense of interaction. Oh my goodness. The bowels as it's beating. Isn't that just amazing? The heart is right there beating in front of me.

Yeah. Oh my goodness. We can see the EKG in front of us while the heart is beating. And then recommend me to do anti-arithmic. Flow and the vessels will be at the same speed of if the patient is tacky or.

.. Exactly. Grady. When this was totally acute, the speed in which the fluid was circulating was in a more rapid state than now when they seem to be a little bit more stabilized after nitroglycerin and fluid administration. Oh my goodness. As an educator, this is the next level. Now let's understand some VR applications in services. The first application is with respect to gaming industry.

Gaming is one of the most prominent application of VR technology offering immersive and interactive gaming experiences. VR gaming platforms such as Oculus Rift, HTC Vive, and PlayStation VR enables players to step into virtual worlds, explore fantastical environments, and interact with virtual characters and objects in real time. Have a look at this video that talks about this particular application of VR with respect to gaming.

Next application of VR is with respect to training and simulation. VR is used in various industries for training and simulation purposes, allowing users to practice skills, scenarios, and procedures in a safe and controlled environment. For example, VR training

simulations are employed in aviation, healthcare, military, and emergency response training to simulate realistic scenarios and provide hands-on experience without real-world risk. Have a look at this video that talks about how VR is applied in training, driving for these particular users as a driving simulator.

Another application of VR is with respect to tourism and travel industry. VR enables virtual tourism experiences, allowing users to explore destinations, attractions, and landmarks from around the world without leaving their homes. Travel companies and tourism boards use VR to create immersive virtual tours, 360-degree videos, and interactive experiences that showcase destinations and inspire travel bookings. Travel companies like Expedia and Marriott offer VR experiences that allow users to virtually explore destinations and accommodations, inspiring travel bookings and enhancing pre-trip planning. Let's have this particular video which showcase how this particular VR is used to make senior citizens make the benefit of world tour.

For people with cognitive impairment or dementia, they have memories often locked deep inside their brains that they can't access. And one way to access those memories is through what we call reminiscence therapy. And reminiscence therapy, in a nutshell, is really just sitting with someone and looking at, say, images of their past, wedding photos, or images from when their children were born. And those things can spark memories that are sort of dug into the brain. And it can be very, very powerful for people to see those images and then experience the emotions around those images.

In summary, virtual reality technology creates immersive, computer-generated environments that users can interact with and explore, offering a wide range of applications across various industries, including gaming, training, tourism, education, and healthcare. VR, or virtual reality, enables users to experience and engage with digital content in a more immersive and interactive manner, transporting them to virtual worlds and expanding the possibilities of human-computer interaction. Finally, let's discuss some benefits of virtual reality in services. The first benefit, of course, is with respect to immersive experiences. Virtual reality creates immersive, simulated environments that transport users to virtual worlds, enabling them to explore, learn, and experience services in new ways.

Second benefit is with respect to training and education. VR provides a safe and realistic environment for training and education, allowing users to practice skills, scenarios, and simulations in a controlled setting. And finally, another benefit is with respect to virtual tourism. VR enables virtual travel experiences, allowing users to explore destinations, attractions, and landmarks from the comfort of their homes, expanding access to travel

services. So now let's discuss some future trends and opportunities with respect to AR and VR.

   First future trend is with respect to continued innovation. AR and VR technologies will continue to evolve, offering new opportunities for service delivery and customer engagement. Secondly, integration with other technologies. Augmented reality and virtual reality will be integrated with other emerging technologies, such as AI, 5G, and the Internet of Things, to create even more immersive and personalized experiences. And finally, industry-specific applications.

   Augmented reality and virtual reality will be increasingly adopted in various industries, including retail, healthcare, education, real estate, and entertainment, driving innovation and transforming service delivery. So in this session, we try to understand the role played by Augmented reality and Virtual reality with respect to services. Thank you.